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AGRICULTURAL NEWS LETTER

VOL. 16 - NO. 5 SEPTEMBER - OCTOBER, 1948

This publication contains information regarding new developments of interest to agriculture based on laboratory and field investigations by the Du Pont Company. It also contains published reports of investigators at agricultural experiment stations and other institutions as related to the Company's products and other subjects of agricultural interest.

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CONTENTS Page

Methoxychlor One of Safest of All Insecticides....82
Nylon-Bristled Brushes Clean Firearms....83
Nylon Lures Long-Lasting In Fresh or Salt Water....84
Polythene Lures Available To Striped Bass Fishermen....84
Three-Pound Test Nylon Monofilament Line for "Spinning"....85
Nylon Leader Designed Especially for Windy-Day Fishing....85
Use of Hot Water and Synthetic Detergents to Wash Eggs....86
Educational Leaflet "Cellophane Highlights" Available....88
Urea Helps Maintain Soil Organic Matter....89
Farmer Destroys Undesirable Trees With "Ammate"....91
Chicken-of-Tomorrow Birds All Fed Same Feed....92
Purpose of Chicken-of-Tomorrow Contest....93
Broiler-Growing 50-Million Dollar Delaware Industry....95
Elevator Builds Trade By Treating Seed Grain....96
Extra Yields Worth Nearly Third of Million Dollars to Farmers....96
Nearly Third of Food Purchases Made On Impulse....97
Why Bother With Land Drainage?....98
Use of Dynamite To Blast Drainage Ditches....99

Agricultural News Letter (Du Pont)
Vol. 16 No. 5 September-October, 1948

DU PONT TOXICOLOGIST TELLS PEST CONTROL GROUP AT PURDUE METHOXYCHLOR ONE OF SAFEST OF ALL INSECTICIDES NOW IN USE

The result of extensive research by Du Pont, "Marlate" 50, the active ingredient of which is methoxychlor, is a modern insecticide, "which aids growers in the effective control of many insect pests," says a new leaflet called "MARLATE 50 for Use on Vegetables, Fruit, and Livestock." (Copy will be sent on request. Address Grasselli Chemicals Department, Du Pont Company, Wilmington 98, Del.)

"'Marlate' 50 combines three important characteristics -- high insecticidal efficiency, low toxicity to warm-blooded animals, and safety to plants," the leaflet says.

It adds that "Marlate" 50 is a white, extremely fine particle composition that can be mixed readily with water for spraying or can be mixed evenly with diluents (except lime or other highly alkaline materials) for dusting. It is compatible with most commonly used fungicides such as wettable and dusting sulfur, Bordeaux mixture, and with "Fermate", "Zerlate", and "Parzate" fungicides and such mixed copper compounds as Copper A. It is also compatible with most common insecticides.

A Du Pont scientist recently said the new insecticide called methoxychlor that kills many household and agricultural insects can be used with practically no risk to animals or growing plants.

The advantages of this extremely safe new compound were described by Dr. J. A. Zapp, Jr., assistant director of Du Pont's Haskell Laboratory of Industrial Toxicology, Wilmington, Del., at the 12th Annual Pest Control Conference at Purdue University.

Expected To Have Wide Use For Control of Numerous Insects

Dr. Zapp said that "because of its very low toxicity to warm-blooded animals and its safety to plant life," the new insecticide is expected to find wide use for control of insects attacking vegetable crops, fruit crops, and insects attacking man and animals. He said it is especially useful where certain other chemicals are considered undesirable.

Continued on next page

The speaker reported on results of detailed research conducted by the Haskell Laboratory and others since 1944, covering the toxicity aspects of methoxychlor. Du Pont recently put it on the market as "Marlate" methoxychlor insecticide.

Dr. Zapp said the tests conducted by the Haskell Laboratory showing the comparative safety of methoxychlor agree with those conducted by the National Institute of Health and the Food and Drug Administration.

"Methoxychlor appears to be one of the safest of all insecticides now in use, both with respect to acute toxicity and the effect of repeated ingestion of small amounts such as would be found in residues on treated crops," Dr. Zapp said. "In addition methoxychlor shows no tendency to accumulate in body fat, as do some other commonly used insecticides."

Tests Show Methoxychlor Has Fast "Knock-Down" Action

C. J. Krister, of Du Pont's newly formed Agricultural Product Development Section, said that successful experiments have been conducted with methoxychlor against numerous insects that attack such vegetables as snap and lima beans, cabbage, cucurbits, and peas, "which are intolerant of DDT or on which DDT residues are not desired."

"Similarly," he added, "methoxychlor may be used on such fruit crops as peaches, early apples, and grapes; against the Japanese beetle and rose chafer. It is effective against nuisance insects such as flies and mosquitoes and has the advantage of fast 'knock-down' action against them." Mr. Krister said that in soil-toxicity tests, methoxychlor has caused no injury to these plants where dosages as high as 100 pounds per acre have been applied.

"No adverse effects have been observed at this high dosage with hybrid field corn, oats, soybeans, carrots, and many other plants," he said.

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NEW NYLON-BRISTLED BRUSHES CLEAN RIFLES, SHOTGUNS, PISTOLS

The sportsman who insists on the best tools for the maintenance and cleaning of his rifle, shotgun and pistol has a new ally in the Mill-Rose Company of Cleveland, Ohio. This company has developed cleaning brushes bristled with nylon. The resilient nylon bristles, produced by the Du Pont Company, makers of nylon leader material for fresh-water and salt-water fishing, are the perfect compromise between wire-bristled and animal-bristled brushes, also made by Mill-Rose.

The new brushes are unaffected by cleaning oils; and the smooth monofilament bristles do not retain dirt, rust, or carbon particles. The brush can be cleaned with soap and water. Each of the nylon-bristled brushes is exactly concentric, assuring equalized cleaning in all directions. They are made in standard sizes to fit all standard guns.

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Agricultural News Letter (Du Pont)
Vol. 16 No.5 September-October, 1948

NEW NYLON LURES LONG-LASTING IN EITHER FRESH OR SALT WATER

Nylon lures of the Jap feather jig type in 33 different styles and weights for all forms of casting and trolling have recently been developed by the Roessler Corporation of Philadelphia.

The new lures have solid nickel-plated brass heads with crimped white nylon monofilament tails attached directly to the metal. The diameter of the monofilaments is .006".

The nylon tails are specially processed for maximum reflection of light, and are permanently attached by high-pressure crimping machines. The tails resist soiling and discoloration, and are long-lasting in either fresh or salt water.

The trolling lures can be rigged on a through leader with nearly any size hook, and the casting lures are equipped with rustless hooks securely mounted with an oversize "Monel" metal pin. The hook is mounted loosely on the pin to give a "free wheeling" action.

The new lures have been used with success for taking sea trout, crevalle, mangrove snapper, blue fish, weakfish, mackerel, kingfish, tuna, snook, red fish, tarpon, bonita, dolphin, albacore, barracuda, striped bass, and other game fish.

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POLYTHENE LURES AVAILABLE TO STRIPED BASS FISHERMEN

Two new lures are now available to the striped bass fisherman. Development of "eel skin" and "squid" baits made of thin, flexible sheets of polythene, a water-resistant plastic manufactured by Du Pont, has been announced. These new plastic lures are colored and decorated to look amazingly like the real thing. They never become rancid, and require no care.

The "squid" bait is natural pink with black markings, and is complete to eyes and tentacles. It comes in three sizes: two-ounce and four-ounce for casting and one and one-quarter ounce for trolling. All three have O'Shaughnessy-style 7/0 hooks, tinned and rust-proof. The polythene eel skin is available either rigged or unrigged, in several sizes. Different weight heads are offered by the manufacturer, the Bradford Tackle Company of Providence, R. I., for both casting and trolling.

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Vol. 16 No. 5 September-October, 1948

THREE-POUND TEST NYLON MONOFILAMENT LINE FOR "SPINNING"

"Spinning" -- the kind of fishing that is causing considerable interest among American anglers -- takes another jump forward with announcement of commercial production of a three-pound test nylon monofilament line. Fishermen can now obtain nylon monofilament lines for "spinning" in pound tests of three, four, six, eight, and ten.

The popularity of "spinning", so called because of the type of reel used, is due in part to the fact that backlashes are impossible. In addition, fishermen can cast extremely light lures longer distances with the new "spinning" reels that have been developed.

Nylon monofilament lines used for "spinning" are so fine they can hardly be seen in the water. Being one solid filament, this material manufactured by Du Pont and packaged and sold as a line by their manufacturing distributors, needs no leader, and slides easily and smoothly from the reel. Nylon monofilament is not affected by fresh or salt water, will not rot, and absorbs practically no water. The line remains flexible, wet or dry, and can be used successfully on any type of "spinning" reel manufactured.

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"TORPEDO" TAPERED NYLON MONOFILAMENT LEADER DESIGNED ESPECIALLY FOR WINDY-DAY FISHING

A new "torpedo" tapered nylon monofilament leader, especially designed for windy-day fishing, is now being manufactured of Du Pont nylon leader material by the Mason Tackle Company of Otisville, Michigan.

These leaders, which come in both nine- and twelve-foot lengths, consist of two- and three-foot lengths of nylon monofilament of different test weights tied with blood knots into a scientifically balanced tapered leader which helps overcome wind resistance.

Diameter of the leader at the line end is the same as that of the line. Then the leader is increased in diameter a short distance from the line end, and finally progressively decreased in diameter to a small tip size. This places the center balance of the leader about one-third out from the tip of the line, which adds power to the cast and makes it easier to straighten out the leader when casting into the wind. It also helps carry the line along with the leader into the wind to give more casting distance and more satisfactory results.

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Agricultural News Letter (Du Pont)
Vol. 16 No. 5 September-October, 1948

USE OF HOT WATER AND SYNTHETIC DETERGENTS TO WASH DIRTY EGGS GROWING IN FAVOR AMONG POULTRYMEN IN EASTERN STATES

"Most authorities agree that the old problem of the washed egg can be laid to the use of cold or lukewarm water, whereas the new methods (described below) utilize water ranging from 140 to 160 degrees F. There is probably a theory of thermodynamics as well as bacteriology to explain the superiority of hot-water washing.

"Putrefactive bacteria are supposed to settle in the shell pores. Even brief soaking in water at a relatively low temperature is believed to 'drive them into the egg' through these pores, thereafter to grow and prosper at the expense of egg quality.

"Quite the opposite, brief immersion in hot water, plain or with detergent, is believed to cause expansion. Bacteria 'holed-in' the shell pores are forced outward, to be removed by the scrubbing disks of the washing machine or by the cloth or spray nozzle of the manual operator.

"Physical proof of the expansion can be seen in the way shell cracks are revealed. Even the 'blind checks,' so difficult for the naked eye to detect, stand out after washing." -- Excerpt from article by Gerald E. Zich in "Poultry Tribune."

Use of a synthetic detergent and hot water is one of the newly developed techniques for washing dirty eggs, says Gerald E. Zich of the New Jersey State Department of Agriculture, Trenton.

Writing in the June, 1948, "Poultry Tribune," Mr. Zich explains that two new developments in egg cleaning by washing have been creating great interest among eastern poultrymen.

"One of the new methods, based on the use of synthetic detergents or 'soapless soaps,' already has two improved variations," Mr. Zich says. "In the first, eggs are washed by hand after brief immersion in hot water containing the detergent. In the second, the manual labor is saved by immersion of entire baskets of eggs in the detergent solution, then using hot water from a hose nozzle to cleanse the eggs."

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Mr. Zich also discusses a new mechanical washing machine developed by Cornell University that uses only plain hot water. The machine, which uses a series of whirling disks to scrub the eggs and electric heat to dry them, is being manufactured to sell at about $240.

Attitude Toward Washing Eggs Changing

Mr. Zich emphasizes that by use of plenty of clean litter and nesting material and frequent collection of eggs, only a small percentage of eggs need cleaning.

"Now, although it's still the best practice to follow a clean egg production program, the attitude toward the washed egg is changing -- provided you wash them properly," Mr. Zich says. He adds that from a comparison of techniques, both machine and detergent methods, "it is obvious that 'proper washing' is contingent upon the use of hot water."

He says that further egg-washing research is underway, but "several eastern marketing associations have made practical experiments which are quite convincing that dirty eggs can be washed safely if properly done." He adds that experiment stations at Ithaca, N. Y., New Brunswick, N. J., and perhaps other locations, are holding "properly washed" eggs under refrigeration, along with unwashed controls, to provide comparisons.

One eastern farmer reports that he and his neighbors obtain excellent results from one tablespoonful of synthetic detergent per gallon of hot water.

Hand Washing of Eggs Requires Short "Soaking Period"

For hand washing of eggs, one container is needed for the detergent solution, another for the clear rinse water, and cloths or canvas gloves for scrubbing, Mr. Zich says.

The lower water temperature, about 115 degrees Fahrenheit, (not to be confused with the higher temperatures recommended below for the basket washing method) permits a short "soaking period," which is not possible with the basket method.

Basket Method Is Faster -- Eliminates Much Manual Labor

When the basket method is used, a clean galvanized ash barrel is filled with the hot (140-160 degrees) detergent solution to a level sufficient to cover a wire basketful of eggs.

"Each basket is dipped, then set aside to drain," Mr. Zich explains. "From 20 to 30 baskets may be dipped without changing the solution. Then, in rotation, all baskets are dipped a second time.

"The hot-water rinse consists of hot water from a hose with a spray valve; the water loosens the dirt which has been attacked previously by the detergent

Continued on the next page

solution, and washes it away. The eggs, still in baskets, are placed in the cool room to dry overnight, then graded and packed into cases.

"Washing by the latter method leaves a number of eggs in the center of the basket dirty because the spray does not reach them. However, the saving in time required over manually cleaning the bulk of the eggs warrants the chore of handling these fugitives.

"Some users of the hot-water detergent method stress the importance of putting the dirtiest eggs in the outside of the basket and not filling the basket more than two-thirds full."

No Reduction In Number of Live Embryos in Washed Eggs

Mr. Zich says studies are being made on the effects of washing by these methods on the hatchability of eggs. He adds that one poultryman producing embryonated eggs for vaccine propagation reports he has been washing eggs for some time, with no reduction in number of live embryos. Mr. Zich adds, however, that the hot-water methods require "an alert and intelligent operator to maintain optimum temperature and to see that eggs don't soak overlong."

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EDUCATIONAL LEAFLET "CELLOPHANE HIGHLIGHTS" AVAILABLE

"Cellophane Highlights", a new illustrated educational leaflet on the history and manufacture of cellophane, is now available to teachers, home economists, extension workers, and others interested in the development of cellophane.

The leaflet traces this development from early experiments made with cellulose to the versatile film of today, tailor-made to serve as a sanitary protective packaging material for hundreds of different products as well as interesting non-packaging uses. Highlights of the manufacturing process show how pure cellulose (from wood pulp) made soluble by a chemical process, is regenerated and transformed into transparent sheets of cellophane.

The first sheet of cellophane produced in this country appeared in the Spring of 1924. With the initial price of $2.65 a pound, its use at first was limited largely to expensive gift boxes of candy and perfume. Years of research and development, together with the investment of millions in plants and improved processes, resulted in expanded markets and the lowering of manufacturing costs. This led to a long series of price reductions in keeping with the tradition of progressive American industry. Today, the price of cellophane is low enough that even penny candies can be wrapped in it.

The leaflet can be obtained by writing to the Cellophane Division, E. I. du Pont de Nemours & Company, Inc., Wilmington 98, Delaware.

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Vol. 16 No. 5 September-October, 1948

UREA ON GREEN MANURE CROPS HELPS MAINTAIN SOIL ORGANIC MATTER

> "The desirability of maintaining or increasing soil organic matter is well recognized, but the addition of the necessary plant materials to accomplish this aim may produce a marked decrease in nitrogen availablility.
>
> "Such a decrease almost invariably occurs when mature carbonaceous materials are added. Young succulent materials may produce no such depression, but the recovery from a unit of nitrogen added in these materials is commonly lower than from a similar quantity of nitrogen added as commercial fertilizer. The nitrogen that is tied up in the added green crops is slowly released later.
>
> "Successive additions of green crops, or of mixtures of carbonaceous materials with fertilizer nitrogen, should therefore produce larger and larger yields as the inactivated nitrogen from the earlier additions is released."
>
> The foregoing is quoted from the published report of studies conducted by the U. S. Dept. of Agriculture, made to obtain, among other information, "quantitative data on the extent to which the added organic materials and fertilizer nitrogen affect the soil organic matter content." The results are reviewed briefly below.

Application of proper amounts of urea-nitrogen fertilizer to green manure crops helps offset the customary decrease in nitrogen availability in the soil and also maintains soil organic matter at a higher level than would otherwise be possible.

This was shown in studies conducted by the U. S. Department of Agriculture at Beltsville, Md., in which urea was applied to millet, one of the green manure crops commonly used to supply organic matter to the soil. In these greenhouse pot tests with five successive indicator crops, covering three years, the average recovery of nitrogen in the crop where urea was added was 53 per cent. Most of the remainder, which became a part of the soil organic matter, was slowly made available when the soils were allowed to remain in fallow for several months.

At any given level of nitrogen (green crop plus urea) green manure crops increased soil carbon roughly in proportion to the quantity of carbon added, regardless of the source of the nitrogen added to the soil.

Approximately 92 to 95 per cent, on the average, of the nitrogen added was accounted for in the crops and soil.

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The highest average yields of dry matter for the five indicator crops, each of which received green manure crops and urea nitrogen, were obtained where urea and young millet were added together, and the lowest yields where the mature crops were added without urea.

"This mature crop initially depressed the yields below those of the check, but a slow release of nitrogen occured later and the yields of the fourth and fifth crops were slightly above those from the check," according to L. A. Pinck, F. E. Allison, and V. L. Gaddy, reporting in the "Journal of the American Society of Agronomy," Vol. 40, No. 3, March, 1948.

"The intermediate millet, applied without urea, gave slight increases over the control. In considering these data it should be borne in mind that the quantity of nitrogen added was not the same for the various plant materials. Urea nitrogen was added at three rates without consideration of the nitrogen contents of the plant materials. The exceptionally high yields from the urea plus young millet treatments were due, therefore, in part to the larger quantities of total nitrogen that these treatments provided."

The report outlines in detail the experimental plan and methods, as well as fully tabulated results. In it, the authors say:

"Probably the most striking fact brought out by this experiment is that a large percentage of the added nitrogen, 46 to 75 per cent, was not recovered in the five harvested crops, but most of it was held in the soil. Since this nitrogen was combined with carbon, the result was a considerable increase in soil organic matter. The extent to which soil organic matter is built up under any given set of conditions is determined largely by the total amount of carbon added to the soil during a given time interval."

They point out that while these greenhouse studies, where three or four crops were grown each year, undoubtedly greatly overemphasize the speed and extent to which soil organic matter can be increased, "they show clearly the type of cropping and fertilizer practices that favor the maintenance or building up of soil organic matter." Certainly, they conclude, "one of the important practical conclusions to be drawn from the experiment is that it is possible to utilize extra nitrogen to maintain soil organic matter at a higher level than would otherwise be possible. The extent to which the nitrogen exerts its effect is dependent primarily upon the additional quantity of root and top residues produced and returned to the soil."

In summarizing their findings, the authors include the following observations:

"Green manure crops having a carbon-nitrogen ratio greater than approximately 35 decreased the yields and the percentage of added urea nitrogen recovered in the crop that followed. At ratios less than this, some of the nitrogen of the green crop, as well as that in added fertilizer nitrogen, was available.

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"Soil organic matter was increased by additions of nitrogen alone, due to the added root residues. Approximately 40 pounds of nitrogen (per acre) per crop were adequate to maintain the original soil organic matter content.

"All types of plant materials and nitrogen sources lowered the carbon-nitrogen ratio of the soil. This indicates that the addition of readily available energy sources increased the oxidation of the carbon in the original soil organic matter.

"The apparent carbon-nitrogen ratio of the humus formed during the decomposition was near 14, the values varying from 12.2 with young plant material to 15.4 with mature crops. The actual ratio was probably higher than these values."

NOTE: "Uramon" fertilizer compound, containing 42 per cent nitrogen in the form of urea, can be used by farmers for the purposes outlined in the foregoing.

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ARKANSAS FARMER DESTROYS UNDESIRABLE TREES WITH "AMMATE"

Du Pont's "Ammate" Weed Killer proved "an easy and inexpensive way to get rid of undesirable trees, such as willow and gum," on several acres of George Clingan's farm in Clark County, Ark., according to County Agent LeRoy Barber of Arkadelphia.

Mr. Clingan bought a pound of "Ammate" last summer, and applied it to some of the trees he wanted to kill. Within two days, these trees, were wilting and shedding their leaves. Soon the entire trees were dead.

"After getting such good results in his preliminary tests, Mr. Clingan bought a larger supply of 'Ammate', and applied it to more trees with equally good results," Mr. Barber reports.

The county agent added that Mr. Clingan attributes part of his success to making the cuts in which the "Ammate" was placed just deep enough to go through the bark, where the normal flow of sap readily took the poison into the tree.

Agricultural News Letter (Du Pont)
Vol. 16 No. 5 September-October, 1948

CHICKEN-OF-TOMORROW BIRDS ALL FED SAME FEED MADE ACCORDING TO FEED MANUFACTURERS' FORMULA

All of the chickens in the National Chicken-of-Tomorrow Contest, recently held at Georgetown, Del., were raised under identical conditions, including uniform care and strict sanitation. All received the same feed made according to a formula prescribed by the Nutrition Committee of the Feed Manufacturers' Association.

Feed Mixed To Provide Fair Feeding Test

This formula called for a 20% protein mash with at least 3½% fat and no more than 7% fiber. The feed was mixed to provide a fair and practical feeding test for the hundreds of chicks hatched from eggs shipped to the contest finals in March.

Ration Contains All Necessary Ingredients

The feed used as a starter and growing ration contained wheat bran, wheat flour middlings, yellow cornmeal, ground oats, corn gluten meal, alfalfa meal, soybean oil meal, meat scraps, fish meal, dried whey, riboflavin supplement, ground limestone, iodized salt, manganese sulfate, vitamin A feeding oil, and D-activated animal sterol to supply vitamin D_3.

PURPOSE OF CHICKEN-OF-TOMORROW CONTEST WAS TO STIMULATE DEVELOPMENT AND PRODUCTION OF BROAD-BREASTED, MEATY BIRDS

The National Chicken-of-Tomorrow Contest, held over a period of three years to stimulate development and production of broad-breasted, meaty chickens, was won by the Vantress Hatchery of Marysville, Calif., whose entry of Cornish-New Hampshire crosses scored a total of 159.8 out of a possible 200 points. A prize of $5,000 was awarded the three Vantress brothers -- Ira, Charles, and Horace -- by the A. and P. Food Stores.

Second prize of $1,000 went to Henry Saglio of Ann Arbor Acres Farm, Glastonbury, Conn., whose White Rock entry scored 151.5 points; and third prize of $500 to the joint Maine entry of H. E. Bates of Litchfield and E. J. Bittner of West Moreland Depot, whose New Hampshires scored just a fraction of a point below the Connecticut entry. Five honorary awards went to the next five high scorers. Of the eight top winners, four were New Hampshires, one White Rock, and three were Cornish crosses. Of the crosses, two were New Hampshire crosses, giving this breed representation in six of the eight top winners. Twelve of the entries were New Hampshires, 12 White Rocks, 12 crosses and odd breeds, 3 Barred Rocks, and 1 Dark Cornish. Fifth place went to John Spangenberg, West Haven, Conn., whose entry of Cornish-White Rock was the outstanding dressed sample of the contest with 149.4 points.

The Chicken-of-Tomorrow is described by Marjorie W. Young, in her column "Around Delaware," in the Wilmington, Del., Sunday "Star" of July 5, as follows: "The new look chicken that will be coming to market is a bird broader breasted, with meatier drumsticks; a breed that grows faster than average and matures on less feed, producing more meat in proportion to bone. It has no pin feathers, but has a skin you love to touch, soft, of good color, well covered with fat."

While the primary objective was the development of chickens with superior meat characteristics, egg-laying ability and other qualities were not overlooked. Records on mortality, hatchability, feed consumption, as well as egg production of the parent flock were kept.

National Committee Selects Delaware As Site of Contest

Last year, the National Committee asked state chairmen to nominate sites for the National Contest in 1948. Bids from Illinois, Virginia, Georgia, and Delaware were investigated, and the offer of the University of Delaware Poultry substation at Georgetown was accepted.

The flocks represented 40 champion breeders from 25 states. During the last week of February, each of the finalists shipped 720 eggs to the Bradley Hatchery at Easton, Md. Out of 31,680 eggs, only 61 were damaged in transit. The chicks were hatched March 22, and 400 selected from each batch for shipment to the raising site at the nearby Georgetown substation.

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Contest Chairman H. L. Shrader, senior extension poultryman of the U. S. Department of Agriculture, and Prof. A. E. Tomhave and his two assistants, Karl Seeger and William C. Lucas, of the University of Delaware, supervised the flocks.

How The Chicks Were Handled

Of the baby chicks incubated, only those that were perfectly formed, alert, and upstanding were selected for the contest. To maintain the identity of each lot, a stamped wing band was placed on each chick, and the chicks moved from the hatchery and put under pre-heated brooder stoves the next day.

Forty Entries Housed In Identical Buildings

The 40 entries were housed in two identical buildings at the Georgetown Poultry substation. The 400 chicks in each entry were placed in 15x20' dirt-floor pens, which allowed three-fourths of a square foot of floor space per chick. Thebrooder stoves were operated from March 21 to May 10, at which time the weather warmed sufficiently, and the birds were in good physical condition. Feed and water were kept before the birds in chick feeders at all times. No supplement or grain was used.

At the close of the 12-week growing period, the chickens were cooped, weighed,and moved to the processing plant at Pocomoke City, Md., where they were placed in special feed batteries for three days. On June 21 they were dressed, and judging was completed in time for the awards at the Georgetown High School June 24.

Twelve Birds From Each Judging Sample Packed for Display

A box of 12 birds from each official judging sample was selected and packed for display purposes. One good specimen was eviscerated, frozen, and cross sectioned by power saw in front of the breast, and also placed on display.

To give visitors an idea of the appearance of each lot of chickens, four pullets, and four cockerels of average weight were kept at the brooder house following the taking of official weights. These birds were placed on display.

Mortality

The mortality through the 12 weeks totaled 6.21%. Lowest mortality in an individual pen was 1.25% and the highest 15.50%. The entire death loss was classified under 24 headings with four diseases of major importance: epidemic tremor, bronchitis, caecal coccidiosis, and Newcastle disease. With the exception of sulfaguanidine for coccidiosis, no treatment was used.

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Agricultural News Letter (Du Pont)
Vol. 16 No. 5 September-October, 1948

BROILER-GROWING NOW 50-MILLION-DOLLAR DELAWARE INDUSTRY

A quarter of a century ago the broiler industry was practically unknown on the Delmarva Peninsula. The first unofficial report showed that Delaware produced about 1,000 broilers in 1923, mostly in southeastern Sussex County near Ocean View.

State Now Producing About 52 Million Broilers Annually

By 1926, about 1 million were produced. The first official report in 1934 showed a production of about 7 million broilers. Last year Delaware produced approximately 52 million broilers with a valuation of about $50,000,000, amounting to about two-thirds of the agricultural income of the State and more than three-fourths of the agricultural income of Sussex County.

Sussex County has the second largest agricultural income of any county east of the Mississippi River. However, Sussex County grows annually about five times as many chickens as any county in the country, and has by far the largest income from chickens of any county in the country.

The other two Delaware counties also grow a considerable number of broilers. New Castle County has a million-dollar and Kent County a three-million dollar industry.

Maryland has become the second most important broiler state. In fact, the Delmarva Peninsula essentially is one production are a.

Moderate Climate and Nearness To Markets Important Factors

A moderate climate and nearness to large eastern metropolitan areas are important factors. Delmarva broilers arrive on eastern markets from 24 to 48 hours after they are killed. With improving production and marketing methods, it is probably that the Peninsula still has not reached its maximum producing capacity.

ELEVATOR COMPANY BUILDS TRADE BY TREATING SEED GRAIN. SERVES NEARLY 3,500 PATRONS AROUND TOWN OF 600 IN MINNESOTA

"To build trade for an elevator, you've got to give service, and we think seed treating is a practical service for grain-elevator operators," says G. H. Homme, manager of the Farmers Elevator at Kerkhoven, a town of 600 population in Swift County, Minnesota. "The farmer gets better crops, and we get better-quality grain. It's hard to dock your best customer for inferior grains -- that's why we set up a seed-treating service."

In 1946 the elevator company treated more than 80,000 bushels of seed for its 3,200 patrons, and this was double the amount of seed treated there in 1940. That custom-treating of seed, begun in that territory in 1939, is steadily increasing is further evidenced by the 1947 total of more than 105,000 bushels for nearly 3,500 patrons.

ELEVATOR COMPANY TREATS SEED FOR 59,058 ACRES. EXTRA YIELDS ESTIMATED WORTH NEARLY THIRD OF A MILLION DOLLARS TO FARMERS

Use of 4,800 pounds of a chemical seed disinfectant on about 105,000 bushels of grain and flax seed by the Farmers Elevator Company of Kerkhoven, Minn., brought almost a third of a million dollars more cash to the farmers of that community than might have been expected from untreated seed.

And this at a cost to the farmers of a fraction more than one cent for each three dollars extra money received from the increase in yield.

The elevator company recently issued a statement saying a total of 105,688 bushels of seed grain and flax were treated in 1947 with New Improved "Ceresan" seed disinfectant at an average rate of 1 pound to 22 bushels of seed. This included 70,620 bushels of oats, 3,608 bushels of wheat, 11,016 bushels of barley, and 20,444 bushels of flax.

This treated seed was planted on 59,058 acres, and produced a harvest of 2,365,249 bushels, a yield estimated by the company at nearly 200,000 bushels over what growers normally would expect to grow with untreated seed. To place some sort of cash value on this estimated increase, the company used prices prevalent at the time of the harvest.

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"Figuring the oats at $1.16, the wheat at $2.98, barley at $2.60, and flax at $6.80, the estimated 198,803 bushels increase in yield brought $332,425.44 extra money into the pockets of local farmers for the 1947 crop year," the statement said.

"Seed Treating Pleases Everyone"

Commenting on this, the February, 1948, issue of "The Grain & Feed Review," of Minneapolis, said:

"While the results to the farmers, of course, were gratifying to the management of the grain firm, they failed to mention that there was a substantial increase in grain volume for the territory -- and most elevator men are decidedly interested in volume. So it would appear that seed treating is an operation that pleases everyone, and increases business all around. The firm doing the treating makes a neat little profit on the operation. The farmers get increased yields, and in the fall the elevator has considerably larger volume of grain to ship."

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NEARLY THIRD OF PURCHASES BY FOOD SHOPPERS MADE ON IMPULSE

Food shoppers in the United States, who last year spent about 28 billion dollars, did a large part of their buying on impulse, according to a national survey conducted by the Du Pont Company's Cellophane Division.

The coast-to-coast study of buying habits recently completed shows that 29.9 per cent, or practically one in three items of all purchases in service-type food stores, were made on impulse.

Out of a grand total of 9,412 grocery items bought by the 1,448 shoppers interviewed in service-type stores, less than half were planned ahead of time.

The survey was conducted on a double interview system. Shoppers' planned purchases were listed upon entering the store, and checked against actual purchases upon leaving.

Impulse Buying Stimulated By Open Display and Effective Packaging

A similar study was previously made by Du Pont in super markets, in which impulse buying amounted to 38.2%. In view of these figures for markets where self-service is so much a factor, the impulse figure in the latest survey of service stores is surprisingly high. The report points out that this impulse-buying trend in all types of stores is undoubtedly stimulated by open display and effective packaging.

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WHY BOTHER WITH LAND DRAINAGE?

"The use of explosives for the excavation of drainage ditches will become more and more popular with farmers as they see how effectively dynamite can be used and how economically it will help drain wet, unproductive fields," says Howard M. Ellis, in charge, agricultural engineering extension, North Carolina State College at Raleigh.

"Land drainage is the removal of surplus water from the soil, whether this is accomplished by nature or by man-made channels," he adds. "Surplus water is the excess above that needed from day to day for the use of plants,and that stored in the lower strata of the earth as a reservoir supply during times of drought.

"Well-drained fields can be worked earlier in the spring. Poor drainage often results in young crops being drowned out, and this necessitates replanting. Cultivation is more costly, and is wasteful on poorly drained fields. Crops grown on well-drained soils are better able to withstand drought because they develop a deeper and stronger root system.

"The presence of air in soil is as essential to the growth of general crops as is the presence of moisture. When there is no ready way for surplus water to pass out of the soil, it stands to reason that the air will be forced from the openings between the soil particles, and these spaces will be occupied by the surplus water. A soil in this condition is saturated, and it must be drained before it can be tended profitably."

Artificial Drainage Should Imitate Nature's Methods

Mr. Ellis says that where natural drainage does not take care of rainfall quickly enough it is necessary to supplement natural water channels with artificial drainage.

"These should be so constructed and placed that they will conduct the surplus water out of the soil, and since this system is designed to aid nature, it is evident that it should imitate nature's methods as far as is practicable," he says.

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USE OF DYNAMITE TO BLAST DRAINAGE DITCHES GROWING RAPIDLY

Blasting of drainage ditches with dynamite has been given considerable impetus during the last few years because of the shortage of labor, the comparative low cost and simplicity of the operation, coupled with the need for putting low-lying and swampy fields into production to meet the shortage of many farm crops.

That is the conclusion of extension agricultural engineers, county agents, and soil conservationists of the various states, who have arranged and supervised numerous ditching demonstrations for their farm groups.

"Dynamite can save both money and labor in ditching," says Howard M. Ellis, in charge, agricultural engineering extension in North Carolina, in "North Carolina Cooperator," February, 1948. Professor Ellis recently conducted 109 ditch-blasting demonstrations on various soils ranging from flat tidewater to mountain bottom lands from one end of the state to the other.

"Dynamite is being successfully used by a large number of farmers who say they get a superior ditch for approximately one-fourth the cost of a hand-dug ditch," he says. "Actual cost records prove this figure is not too far out of line."

North Carolina Farmers Put Swampy Land Into Shape for Crops

"Ditching with dynamite has spread widely over North Carolina," Mr. Ellis says. "Farmers who needed to drain low-lying and swampy land could frequently find no labor available to dig the drainage ditches by hand, so they turned to explosives. Fields that had been allowed to become marshy during the war were again put in shape for food production for a hungry world, and many wet places in otherwise fertile fields have been drained."

One Blast Blows 600-Foot Ditch in Rowan County

In Rowan County, N. C., D. A. Misenheimer blew a ditch 600 feet long for a net cost of $60, including labor and materials used. He used straight 50% nitroglycerin dynamite, especially designed for ditch blasting, placing one stick per hole 12 inches apart. One cap set off all the sticks, and one blast blew the entire 600 feet of ditch. Several other Rowan County farmers also blew similar ditches, ranging up to 1,400 feet in length.

Dynamite and Two Hours of Labor Save Man Year's Work in Granville County

During the latter part of April, 10 men in Granville County used dynamite to blow ditches. C. H. Cheatham of Oxford blew 900 feet through the lower end of his pasture, and says the dynamite opened up for use about 10 acres of good pasture land that had been producing only water grass for several years.

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George Barnes of Oxford blew a 500-foot ditch at a cost of only $25 in cash and two hours of time. He says digging this ditch by hand would have taken one man 12 months of hard labor. G. D. Adcock of Rougemont reports the ditch blown on his place with $20 worth of dynamite would have saved him $700 had it been dug before he planted his tobacco last year. He lost considerable tobacco because of poor drainage.

Dynamite Helpful Where Briars and Bushes Grew in Wilson County

Wilson County farmers used about 20,000 pounds of dynamite in one season to blast ditches through swamps, woods, pastures, and wet places. Farm Agent Joseph Anthony says the dynamite did an excellent job, especially where the growth of briars and bushes was heavy and stumps were numerous. He estimates the cost was just about 30 per cent of the cost of hand labor, if hand labor had been available.

Neighbors Watch Demonstrations in Duplin County

On the farms of Mrs. Alice V. Kornegay, John Miller, and Leonard Kennedy in Duplin County, 145 persons saw ditches blown three feet deep and five feet wide at the top, at a cost of from 20 to 22 cents a yard. John Miller says this was cheaper than he could feed laborers for the job, to say nothing of paying them.

About 3,000 yards of farm drainage canals also were dug with dynamite in Duplin County. Lacy Weeks, farm agent, says 30 farmers in Cedar Ford community cooperated to shoot a drainage canal three and a half miles long, resulting in better drainage of their farms.

New Ditch Blown in Chowan County Follows Course of Old Overgrown One

In Chowan County, a ditch about 600 feet long was dug through some rough, stumpy ground on the farm of C. B. White. This ditch followed the course of an old one that had been completely overgrown with a heavy network of roots along its bed. Mr. White used 475 pounds of the 50% ditching dynamite, a part of which was used to blast out an opening into a large lateral canal into which this farm ditch could empty. A tracing was first cut with axes about three feet from the center on each side. The blast cleaned out a sloping ditch about four feet deep and six feet wide at the top. About 100 neighboring farmers saw the demonstration. The ditch cost about $100 for materials and labor. Mr. White says it could not have been dug by hand for less than $200. Farm Agent Charles Overman advises that a similar 1,000-foot ditch was dug on the farm of J. P. McNider, with 650 pounds of dynamite. This ditch cost 12 cents a foot.

NOTE: Du Pont's booklet, "Ditching With Dynamite," which gives complete information on the two distinct methods of blasting ditches -- the propagation and the electric -- will be sent on request. Address the Editor, Du Pont "Agricultural News Letter," Wilmington 98, Del.

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